

SEQUENCE LISTING

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<110> Kumamoto Technology & Industry Foundation

<120> anti-HIV antibody

<130> G06-0029US

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<141> 2004-03-09

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<160> 9

<170> PatentIn version 3.2

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<211> 6429

<212> DNA

<213> Mus musculus

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<221> CDS

<222> (384)..(6299)

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gat aat gct ggt gat atc cag acc ctc tca gtc ttt aat aca ctt	4604
Asp Asn Ala Gly Asp Ile Gln Thr Leu Ser Val Phe Asn Thr Leu	
1395 1400 1405	
agt agt aaa ggg gat caa aca gtt tct gtc aac gtg tgt ata aag	4649
Ser Ser Lys Gly Asp Gln Thr Val Ser Val Asn Val Cys Ile Lys	
1410 1415 1420	
gtg gct cat ggc acc ctt agt gac agt gcc ctt gat gct gtg gag	4694

Val	Ala	His	Gly	Thr	Leu	Ser	Asp	Ser	Ala	Leu	Asp	Ala	Val	Glu	
		1425					1430					1435			
acc	cag	aag	gac	ctg	ttg	gga	acc	agt	ggg	ctc	atg	ctg	ctg	ctt	4739
Thr	Gln	Lys	Asp	Leu	Leu	Gly	Thr	Ser	Gly	Leu	Met	Leu	Leu	Leu	
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Pro	Pro	Lys	Val	Lys	Ser	Glu	Glu	Val	Ala	Glu	Glu	Glu	Leu	Ser	
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tgg	ctg	tcg	gct	tta	ctg	cag	ctc	aag	cag	ctt	ctg	cag	gcc	aag	4829
Trp	Leu	Ser	Ala	Leu	Leu	Gln	Leu	Lys	Gln	Leu	Leu	Gln	Ala	Lys	
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Pro	Phe	Gln	Pro	Ala	Leu	Pro	Leu	Val	Val	Leu	Val	Pro	Ser	Ser	
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Arg	Gly	Asp	Ser	Ala	Gly	Arg	Ala	Val	Glu	Asp	Gly	Leu	Met	Leu	
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Gln	Asp	Leu	Val	Ser	Ala	Lys	Leu	Ile	Ser	Asp	Tyr	Ile	Val	Val	
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Glu	Ile	Pro	Asp	Ser	Val	Asn	Asp	Leu	Gln	Gly	Thr	Val	Lys	Val	
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Ser	Gly	Ala	Val	Gln	Trp	Leu	Ile	Ser	Gly	Cys	Pro	Gln	Ala	Leu	
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Asp	Leu	Cys	Cys	Gln	Thr	Leu	Val	Gln	Tyr	Val	Glu	Asp	Gly	Ile	
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Ser	Arg	Glu	Phe	Ser	Arg	Arg	Phe	Phe	His	Asp	Arg	Arg	Glu	Arg	
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cgc	ctg	gct	agc	ctg	ccc	tcc	cag	gag	cct	agc	acc	att	att	gag	5189
Arg	Leu	Ala	Ser	Leu	Pro	Ser	Gln	Glu	Pro	Ser	Thr	Ile	Ile	Glu	
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ttg	ttc	aac	agt	gtg	ctg	cag	ttc	ctg	gcc	tct	gtg	gta	tcc	tct	5234
Leu	Phe	Asn	Ser	Val	Leu	Gln	Phe	Leu	Ala	Ser	Val	Val	Ser	Ser	
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gag	cag	ctg	tgt	gac	atc	tcc	tgg	cct	gtc	atg	gaa	ttt	gcc	gaa	5279
Glu	Gln	Leu	Cys	Asp	Ile	Ser	Trp	Pro	Val	Met	Glu	Phe	Ala	Glu	
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gtg	gga	ggc	agc	cag	ctg	ctt	cct	cac	ctg	cac	tgg	aac	tca	cca	5324
Val	Gly	Gly	Ser	Gln	Leu	Leu	Pro	His	Leu	His	Trp	Asn	Ser	Pro	
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gag cat cta	gcg tgg ctg	aaa caa	gct gtg ctt	ggg ttc	cag ctt	5369
Glu His Leu	Ala Trp Leu	Lys Gln	Ala Val Leu	Gly Phe	Gln Leu	
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cca cag atg	gac ctt cca	ccc cca	ggg gcc ccc	tgg ctc	cct gtg	5414
Pro Gln Met	Asp Leu Pro	Pro Pro	Gly Ala Pro	Trp Leu	Pro Val	
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tgt tcc atg	gtc att cag	tac acc	tcc cag att	ccc agc	tca agc	5459
Cys Ser Met	Val Ile Gln	Tyr Thr	Ser Gln Ile	Pro Ser	Ser Ser	
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Gln Thr Gln	Pro Val Leu	Gln Ser	Gln Ala Glu	Asn Leu	Leu Cys	
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Arg Thr Tyr	Gln Lys Trp	Lys Asn	Lys Ser Leu	Ser Pro	Gly Gln	
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Glu Leu Gly	Pro Ser Val	Ala Glu	Ile Pro Trp	Asp Asp	Ile Ile	
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Thr Leu Cys	Ile Asn His	Lys Leu	Arg Asp Trp	Thr Pro	Pro Arg	
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ctc cct gtc	aca tta gag	gcg ctg	agt gaa gat	ggt caa	ata tgt	5684
Leu Pro Val	Thr Leu Glu	Ala Leu	Ser Glu Asp	Gly Gln	Ile Cys	
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gtg tat ttt	ttc aaa aac	ctt tta	aga aaa tac	cac gtt	ccc tcg	5729
Val Tyr Phe	Phe Lys Asn	Leu Leu	Arg Lys Tyr	His Val	Pro Ser	
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Ser Trp Glu	Gln Ala Arg	Met Gln	Thr Gln Arg	Glu Leu	Gln Leu	
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agt cat gga	cgt tcg ggg	atg agg	tcc atc cat	cct cct	aca agc	5819
Ser His Gly	Arg Ser Gly	Met Arg	Ser Ile His	Pro Pro	Thr Ser	
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act ttt cct	act cca ttg	ctt cat	gta cac cag	aaa ggg	aag aaa	5864
Thr Phe Pro	Thr Pro Leu	Leu His	Val His Gln	Lys Gly	Lys Lys	
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Lys Glu Glu	Ser Gly Arg	Glu Gly	Ser Leu Ser	Thr Glu	Asp Leu	
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ctg cgg ggg	gct tct gca	gaa gag	ctc ctg gca	cag agt	ctg tcc	5954
Leu Arg Gly	Ala Ser Ala	Glu Glu	Leu Leu Ala	Gln Ser	Leu Ser	
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Ser Ser Leu Leu Glu Glu Lys Glu Glu Asn Lys Arg Phe Glu Asp	
1860 1865 1870	
caa ctt cag cag tgg tta tcg caa gac tca cag gca ttc aca gag	6044
Gln Leu Gln Gln Trp Leu Ser Gln Asp Ser Gln Ala Phe Thr Glu	
1875 1880 1885	
tca act cgg ctt cct ctc tac ctc cct cag acg cta gtg tcc ttt	6089
Ser Thr Arg Leu Pro Leu Tyr Leu Pro Gln Thr Leu Val Ser Phe	
1890 1895 1900	
cct gat tct atc aaa act cag acc atg gtg aaa aca tct aca agt	6134
Pro Asp Ser Ile Lys Thr Gln Thr Met Val Lys Thr Ser Thr Ser	
1905 1910 1915	
cct cag aat tca gga aca gga aag cag ttg agg ttc tca gag gca	6179
Pro Gln Asn Ser Gly Thr Gly Lys Gln Leu Arg Phe Ser Glu Ala	
1920 1925 1930	
tcc ggt tca tcc ctg acg gaa aag ctg aag ctc ctg gaa agg ctg	6224
Ser Gly Ser Ser Leu Thr Glu Lys Leu Lys Leu Leu Glu Arg Leu	
1935 1940 1945	
atc cag agc tca agg gcg gaa gaa gca gcc tcc gag ctg cac ctc	6269
Ile Gln Ser Ser Arg Ala Glu Glu Ala Ala Ser Glu Leu His Leu	
1950 1955 1960	
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Ser Ala Leu Leu Glu Met Val Asp Met	
1965 1970	
ctctaattca taatgctttg tctgtattca attgtgttat agatgctgtt ggaaatgtga	6379
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Leu Ala Phe Ser Gln Val Pro Ser Phe Ala Thr Pro Ser Gly Gly Ser	
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His Ser Ser Ser Leu Pro Ala Phe Gly Leu Thr Gln Thr Ser Ser Val
65 70 75 80

Gly Leu Phe Ser Ser Leu Glu Ser Thr Pro Ser Phe Ala Ala Thr Ser
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Ser Ser Ser Val Pro Gly Asn Thr Ala Phe Ser Phe Lys Ser Thr Ser
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Ser Val Gly Val Phe Pro Ser Gly Ala Thr Phe Gly Pro Glu Thr Gly
115 120 125

Glu Val Ala Gly Ser Gly Phe Arg Lys Thr Glu Phe Lys Phe Lys Pro
130 135 140

Leu Glu Asn Ala Val Phe Lys Pro Ile Pro Gly Pro Glu Ser Glu Pro
145 150 155 160

Glu Lys Thr Gln Ser Gln Ile Ser Ser Gly Phe Phe Thr Phe Ser His
165 170 175

Pro Val Gly Ser Gly Ser Gly Gly Leu Thr Pro Phe Ser Phe Pro Gln
180 185 190

Val Thr Asn Ser Ser Val Thr Ser Ser Ser Phe Ile Phe Ser Lys Pro
195 200 205

Val Thr Ser Asn Thr Pro Ala Phe Ala Ser Pro Leu Ser Asn Gln Asn
210 215 220

Val Glu Glu Glu Lys Arg Val Ser Thr Ser Ala Phe Gly Ser Ser Asn
225 230 235 240

Ser Ser Phe Ser Thr Phe Pro Thr Ala Ser Pro Gly Ser Leu Gly Glu
245 250 255

Pro Phe Pro Ala Asn Lys Pro Ser Leu Arg Gln Gly Cys Glu Glu Ala
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Ile Ser Gln Val Glu Pro Leu Pro Thr Leu Met Lys Gly Leu Lys Arg
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Lys Glu Asp Gln Asp Arg Ser Pro Arg Arg His Cys His Glu Ala Ala

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Glu Asp Pro Asp Pro Leu Ser Arg Gly Asp His Pro Pro Asp Lys Arg 305 310 315 320		
Pro Val Arg Leu Asn Arg Pro Arg Gly Gly Thr Leu Phe Gly Arg Thr 325 330 335		
Ile Gln Glu Val Phe Lys Ser Asn Lys Glu Ala Gly Arg Leu Gly Ser 340 345 350		
Lys Glu Ser Lys Glu Ser Gly Phe Ala Glu Pro Gly Glu Ser Asp His 355 360 365		
Ala Ala Val Pro Gly Gly Ser Gln Ser Thr Met Val Pro Ser Arg Leu 370 375 380		
Pro Ala Val Thr Lys Glu Glu Glu Glu Ser Arg Asp Glu Lys Glu Asp 385 390 395 400		
Ser Leu Arg Gly Lys Ser Val Arg Gln Ser Lys Arg Arg Glu Glu Trp 405 410 415		
Ile Tyr Ser Leu Gly Gly Val Ser Ser Leu Glu Leu Thr Ala Ile Gln 420 425 430		
Cys Lys Asn Ile Pro Asp Tyr Leu Asn Asp Arg Ala Ile Leu Glu Lys 435 440 445		
His Phe Ser Lys Ile Ala Lys Val Gln Arg Val Phe Thr Arg Arg Ser 450 455 460		
Lys Lys Leu Ala Val Ile His Phe Phe Asp His Ala Ser Ala Ala Leu 465 470 475 480		
Ala Arg Lys Lys Gly Lys Gly Leu His Lys Asp Val Val Ile Phe Trp 485 490 495		
His Lys Lys Lys Ile Ser Pro Ser Lys Lys Leu Phe Pro Leu Lys Glu 500 505 510		
Lys Leu Gly Glu Ser Glu Ala Ser Gln Gly Ile Glu Asp Ser Pro Phe 515 520 525		

Gln His Ser Pro Leu Ser Lys Pro Ile Val Arg Pro Ala Ala Gly Ser
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Leu Leu Ser Lys Ser Ser Pro Val Lys Lys Pro Ser Leu Leu Lys Met
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His Gln Phe Glu Ala Asp Pro Phe Asp Ser Gly Ser Glu Gly Ser Glu
565 570 575

Gly Leu Gly Ser Cys Val Ser Ser Leu Ser Thr Leu Ile Gly Thr Val
580 585 590

Ala Asp Thr Ser Glu Glu Lys Tyr Arg Leu Leu Asp Gln Arg Asp Arg
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Ile Met Arg Gln Ala Arg Val Lys Arg Thr Asp Leu Asp Lys Ala Arg
610 615 620

Ala Phe Val Gly Thr Cys Pro Asp Met Cys Pro Glu Lys Glu Arg Tyr
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Leu Arg Glu Thr Arg Ser Gln Leu Ser Val Phe Glu Val Val Pro Gly
645 650 655

Thr Asp Gln Val Asp His Ala Ala Ala Val Lys Glu Tyr Ser Arg Ser
660 665 670

Ser Ala Asp Gln Glu Glu Pro Leu Pro His Glu Leu Arg Pro Ser Ala
675 680 685

Val Leu Ser Arg Thr Met Asp Tyr Leu Val Thr Gln Ile Met Asp Gln
690 695 700

Lys Glu Gly Ser Leu Arg Asp Trp Tyr Asp Phe Val Trp Asn Arg Thr
705 710 715 720

Arg Gly Ile Arg Lys Asp Ile Thr Gln Gln His Leu Cys Asp Pro Leu
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Thr Val Ser Leu Ile Glu Lys Cys Thr Arg Phe His Ile His Cys Ala
740 745 750

His Phe Met Cys Glu Glu Pro Met Ser Ser Phe Asp Ala Lys Ile Asn

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Asn	Glu	Asn	Met	Thr	Lys	Cys	Leu	Gln	Ser	Leu	Lys	Glu	Met	Tyr	Gln
	770					775					780				
Asp	Leu	Arg	Asn	Lys	Gly	Val	Phe	Cys	Ala	Ser	Glu	Ala	Glu	Phe	Gln
785					790					795					800
Gly	Tyr	Asn	Val	Leu	Leu	Asn	Leu	Asn	Lys	Gly	Asp	Ile	Leu	Arg	Glu
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Val	Gln	Gln	Phe	His	Pro	Asp	Val	Arg	Asn	Ser	Pro	Glu	Val	Asn	Phe
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Ala	Val	Gln	Ala	Phe	Ala	Ala	Leu	Asn	Ser	Asn	Asn	Phe	Val	Arg	Phe
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Phe	Lys	Leu	Val	Gln	Ser	Ala	Ser	Tyr	Leu	Asn	Ala	Cys	Leu	Leu	His
	850					855					860				
Cys	Tyr	Phe	Asn	Gln	Ile	Arg	Lys	Asp	Ala	Leu	Arg	Ala	Leu	Asn	Val
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Ala	Tyr	Thr	Val	Ser	Thr	Gln	Arg	Ser	Thr	Val	Phe	Pro	Leu	Asp	Gly
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Leu	Asn	Tyr	His	Gly	Leu	Thr	Val	Ala	Asp	Gly	Cys	Val	Glu	Leu	Asn
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Arg	Ser	Ala	Phe	Leu	Glu	Pro	Glu	Gly	Leu	Cys	Lys	Ala	Arg	Lys	Ser
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Val	Phe	Ile	Gly	Arg	Lys	Leu	Thr	Val	Ser	Val	Gly	Glu	Val	Val	Asn
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Gly	Gly	Pro	Leu	Pro	Pro	Val	Pro	Arg	His	Thr	Pro	Val	Cys	Ser	Phe
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Ile Ser Thr Gln Arg Ala Gly Gly Asp Pro Ala Gly Gly Gly Arg Gly
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Glu Asp Cys Glu Ala Glu Val Asp Leu Pro Thr Leu Ala Val Leu
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Pro Gln Pro Pro Pro Ala Ser Ser Ala Thr Pro Ala Leu His Val
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Gln Pro Leu Ala Pro Ala Ala Ala Pro Ser Leu Leu Gln Ala Ser
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Thr Gln Pro Glu Val Leu Leu Pro Lys Pro Ala Pro Val Tyr Ser
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Asp Ser Asp Leu Val Gln Val Val Asp Glu Leu Ile Gln Glu Ala
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Val Ala Ala Ala Leu Gly Val Ser Asn Ala Ala Val Glu Asp Leu
 1100 1105 1110

Ile Thr Ala Ala Thr Thr Gly Ile Leu Arg His Val Ala Ala Glu
 1115 1120 1125

Glu Val Ser Met Glu Arg Gln Arg Leu Glu Glu Glu Lys Gln Arg
 1130 1135 1140

Ala Glu Glu Glu Arg Leu Lys Gln Glu Arg Glu Leu Met Leu Thr
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Gln Leu Ser Glu Gly Leu Ala Ala Glu Leu Thr Glu Leu Thr Val
 1160 1165 1170

Thr Glu Cys Val Trp Glu Thr Cys Ser Gln Glu Leu Gln Ser Ala
 1175 1180 1185

Val Lys Ile Asp Gln Lys Val Arg Val Ala Arg Cys Cys Glu Ala
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Val Cys Ala His Leu Val Asp Leu Phe Leu Ala Glu Glu Ile Phe

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Gln Thr 1220	Ala Lys Glu Thr	Leu 1225	Gln Glu Leu Gln	Cys Phe Cys Lys 1230
Tyr Leu 1235	Gln Arg Trp Arg	Glu 1240	Ala Val Ala Ala	Arg Lys Lys Phe 1245
Arg Arg 1250	Gln Met Arg Ala	Phe 1255	Pro Ala Ala Pro	Cys Cys Val Asp 1260
Val Asn 1265	Asp Arg Leu Gln	Ala 1270	Leu Val Pro Ser	Ala Glu Cys Pro 1275
Ile Thr 1280	Glu Glu Asn Leu	Ala 1285	Lys Gly Leu Leu	Asp Leu Gly His 1290
Ala Gly 1295	Lys Val Gly Val	Ser 1300	Cys Thr Arg Leu	Arg Arg Leu Arg 1305
Asn Lys 1310	Thr Ala His Gln	Ile 1315	Lys Val Gln His	Phe His Gln Gln 1320
Leu Leu 1325	Arg Asn Ala Ala	Trp 1330	Ala Pro Leu Asp	Leu Pro Ser Ile 1335
Val Ser 1340	Glu His Leu Pro	Met 1345	Lys Gln Lys Arg	Arg Phe Trp Lys 1350
Leu Val 1355	Leu Val Leu Pro	Asp 1360	Val Glu Glu Gln	Thr Pro Glu Ser 1365
Pro Gly 1370	Arg Ile Leu Glu	Asn 1375	Trp Leu Lys Val	Lys Phe Thr Gly 1380
Asp Asp 1385	Ser Met Val Gly	Asp 1390	Ile Gly Asp Asn	Ala Gly Asp Ile 1395
Gln Thr 1400	Leu Ser Val Phe	Asn 1405	Thr Leu Ser Ser	Lys Gly Asp Gln 1410
Thr Val 1415	Ser Val Asn Val	Cys 1420	Ile Lys Val Ala	His Gly Thr Leu 1425

Ser	Asp	Ser	Ala	Leu	Asp	Ala	Val	Glu	Thr	Gln	Lys	Asp	Leu	Leu
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Leu	Pro	His	Leu	His	Trp	Asn	Ser	Pro	Glu	His	Leu	Ala	Trp	Leu

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Pro Pro Gly Ala Pro Trp Leu Pro Val Cys Ser Met Val Ile Gln				
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Tyr Thr Ser Gln Ile Pro Ser Ser Ser Gln Thr Gln Pro Val Leu				
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Gln Ser Gln Ala Glu Asn Leu Leu Cys Arg Thr Tyr Gln Lys Trp				
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Ala Glu Ile Pro Trp Asp Asp Ile Ile Thr Leu Cys Ile Asn His				
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Lys Leu Arg Asp Trp Thr Pro Pro Arg Leu Pro Val Thr Leu Glu				
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Ala Leu Ser Glu Asp Gly Gln Ile Cys Val Tyr Phe Phe Lys Asn				
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Leu Leu Arg Lys Tyr His Val Pro Ser Ser Trp Glu Gln Ala Arg				
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Met Gln Thr Gln Arg Glu Leu Gln Leu Ser His Gly Arg Ser Gly				
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Met Arg Ser Ile His Pro Pro Thr Ser Thr Phe Pro Thr Pro Leu				
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Leu His Val His Gln Lys Gly Lys Lys Lys Glu Glu Ser Gly Arg				
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Glu Gly Ser Leu Ser Thr Glu Asp Leu Leu Arg Gly Ala Ser Ala				
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Glu Glu Leu Leu Ala Gln Ser Leu Ser Ser Ser Leu Leu Glu Glu				
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Lys Glu Glu Asn Lys Arg Phe Glu Asp Gln Leu Gln Gln Trp Leu
 1865 1870 1875

Ser Gln Asp Ser Gln Ala Phe Thr Glu Ser Thr Arg Leu Pro Leu
 1880 1885 1890

Tyr Leu Pro Gln Thr Leu Val Ser Phe Pro Asp Ser Ile Lys Thr
 1895 1900 1905

Gln Thr Met Val Lys Thr Ser Thr Ser Pro Gln Asn Ser Gly Thr
 1910 1915 1920

Gly Lys Gln Leu Arg Phe Ser Glu Ala Ser Gly Ser Ser Leu Thr
 1925 1930 1935

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Val Asp Met
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caa aca tta ggg ttc acc caa acc tca agt gtt gga ccc ttt tct gga Gln Thr Leu Gly Phe Thr Gln Thr Ser Ser Val Gly Pro Phe Ser Gly 75 80 85			295
ctt gag cac act tcc acc ttt gtg gct acc tct ggg cct tca agt tca Leu Glu His Thr Ser Thr Phe Val Ala Thr Ser Gly Pro Ser Ser Ser 90 95 100			343
tct gtg ctg gga aac aca gga ttt agt ttt aaa tca ccc acc agt gtt Ser Val Leu Gly Asn Thr Gly Phe Ser Phe Lys Ser Pro Thr Ser Val 105 110 115			391
ggg gct ttc cca agc act tct gct ttt gga caa gaa gct gga gaa ata Gly Ala Phe Pro Ser Thr Ser Ala Phe Gly Gln Glu Ala Gly Glu Ile 120 125 130			439
gtg aac tct ggt ttt ggg aaa aca gaa ttc agc ttt aaa cct ctg gaa Val Asn Ser Gly Phe Gly Lys Thr Glu Phe Ser Phe Lys Pro Leu Glu 135 140 145 150			487
aat gca gtg ttc aaa cca ata ctg ggg gct gaa tct gag cca gag aaa Asn Ala Val Phe Lys Pro Ile Leu Gly Ala Glu Ser Glu Pro Glu Lys 155 160 165			535
acc cag agc caa att gct tct ggg ttt ttt aca ttt tcc cac cca att Thr Gln Ser Gln Ile Ala Ser Gly Phe Phe Thr Phe Ser His Pro Ile 170 175 180			583
agt agt gca cct gga ggc ctg gcc cct ttc tct ttt cct caa gta aca Ser Ser Ala Pro Gly Gly Leu Ala Pro Phe Ser Phe Pro Gln Val Thr 185 190 195			631
agt agt tca gct acc act tca aat ttt acc ttt tca aaa cct gtt agt Ser Ser Ser Ala Thr Thr Ser Asn Phe Thr Phe Ser Lys Pro Val Ser 200 205 210			679
agt aat aat tca tta tct gcc ttt acc cct gct ttg tca aac caa aat Ser Asn Asn Ser Leu Ser Ala Phe Thr Pro Ala Leu Ser Asn Gln Asn 215 220 225 230			727
gta gag gaa gag aag aga gga cct aag tca ata ttt gga agt tct aat Val Glu Glu Glu Lys Arg Gly Pro Lys Ser Ile Phe Gly Ser Ser Asn 235 240 245			775
aat agc ttc agt agc ttc cct gta tca tct gcg gtt ttg ggc gaa cct Asn Ser Phe Ser Ser Phe Pro Val Ser Ser Ala Val Leu Gly Glu Pro 250 255 260			823
ttc cag gct agc aaa gca ggt gtc agg cag ggg tgt gaa gaa gct gtt Phe Gln Ala Ser Lys Ala Gly Val Arg Gln Gly Cys Glu Glu Ala Val 265 270 275			871

tcc cag gtg gaa cca ctt ccc agc cta atg aaa gga ctg aaa agg aag Ser Gln Val Glu Pro Leu Pro Ser Leu Met Lys Gly Leu Lys Arg Lys 280 285 290	919
gag gac cag gat cgc tcc cca agg aga cat ggc cac gag cca gca gaa Glu Asp Gln Asp Arg Ser Pro Arg Arg His Gly His Glu Pro Ala Glu 295 300 305 310	967
gat tcg gat cct ctg tcc cgg ggc gat cat cct cca gac aaa cga cct Asp Ser Asp Pro Leu Ser Arg Gly Asp His Pro Pro Asp Lys Arg Pro 315 320 325	1015
gtc cgc ctg aat cga ccc cgg gga ggt act tta ttt ggt cgg acg ata Val Arg Leu Asn Arg Pro Arg Gly Gly Thr Leu Phe Gly Arg Thr Ile 330 335 340	1063
cag gat gtt ttc aaa agc aat aag gaa gta ggt cgt ctg ggc aac aag Gln Asp Val Phe Lys Ser Asn Lys Glu Val Gly Arg Leu Gly Asn Lys 345 350 355	1111
gag gcc aaa aag gaa act ggc ttt gtt gag tct gca gaa agt gac cac Glu Ala Lys Lys Glu Thr Gly Phe Val Glu Ser Ala Glu Ser Asp His 360 365 370	1159
atg gct atc cca gga ggg aat cag tct gtc ctg gca cct tcc cgg att Met Ala Ile Pro Gly Gly Asn Gln Ser Val Leu Ala Pro Ser Arg Ile 375 380 385 390	1207
cca ggt gtg aat aaa gag gaa gaa act gaa agt aga gag aag aaa gaa Pro Gly Val Asn Lys Glu Glu Glu Thr Glu Ser Arg Glu Lys Lys Glu 395 400 405	1255
gat tct cta aga gga act ccg gcg cgt cag agt aac aga agc gag agc Asp Ser Leu Arg Gly Thr Pro Ala Arg Gln Ser Asn Arg Ser Glu Ser 410 415 420	1303
aca gac agt ctt ggg ggc ttg tct ccc tct gaa gtc aca gcc atc cag Thr Asp Ser Leu Gly Gly Leu Ser Pro Ser Glu Val Thr Ala Ile Gln 425 430 435	1351
tgc aag aac atc cct gac tac ctc aac gac agg acc att ctg gag aac Cys Lys Asn Ile Pro Asp Tyr Leu Asn Asp Arg Thr Ile Leu Glu Asn 440 445 450	1399
cat ttt ggc aaa att gct aaa gtg cag cgc atc ttt acc agg cgc agc His Phe Gly Lys Ile Ala Lys Val Gln Arg Ile Phe Thr Arg Arg Ser 455 460 465 470	1447
aaa aag ctt gca gtg gta cat ttc ttt gat cat gca tct gca gcc ctg Lys Lys Leu Ala Val Val His Phe Phe Asp His Ala Ser Ala Ala Leu 475 480 485	1495
gct aga aag aag ggg aaa agt ttg cat aaa gac atg gct atc ttt tgg Ala Arg Lys Lys Gly Lys Ser Leu His Lys Asp Met Ala Ile Phe Trp 490 495 500	1543
cac agg aag aaa ata agc ccc aat aag aaa ccc ttt tcc ctg aag gag His Arg Lys Lys Ile Ser Pro Asn Lys Lys Pro Phe Ser Leu Lys Glu	1591

505					510					515						
aag Lys	aaa Lys	cca Pro	ggt Gly	gac Asp	ggt Gly	gaa Glu	gtc Val	agc Ser	ccg Pro	agc Ser	aca Thr	gag Glu	gat Asp	gca Ala	ccc Pro	1639
520					525					530						
ttt Phe	cag Gln	cac His	tct Ser	cct Pro	ctt Leu	ggc Gly	aag Lys	gcc Ala	gca Ala	ggg Gly	agg Arg	act Thr	ggt Gly	gct Ala	agc Ser	1687
535					540					545					550	
agc Ser	ctc Leu	ctg Leu	aat Asn	aaa Lys	agc Ser	tct Ser	cca Pro	gtg Val	aag Lys	aag Lys	cca Pro	agt Ser	ctt Leu	cta Leu	aag Lys	1735
555					560					565						
gcc Ala	cac His	caa Gln	ttc Phe	gag Glu	gga Gly	gac Asp	tct Ser	ttt Phe	gac Asp	tca Ser	gcc Ala	tcc Ser	gag Glu	ggc Gly	tcc Ser	1783
570					575					580						
gag Glu	ggc Gly	ctc Leu	ggg Gly	cca Pro	tgt Cys	gtg Val	ctc Leu	tcc Ser	ctc Leu	agt Ser	acc Thr	ctg Leu	ata Ile	ggc Gly	act Thr	1831
585					590					595						
gtg Val	gct Ala	gag Glu	aca Thr	tcc Ser	aag Lys	gag Glu	aag Lys	tac Tyr	cgc Arg	ctg Leu	ctt Leu	gac Asp	cag Gln	aga Arg	gac Asp	1879
600					605					610						
agg Arg	atc Ile	atg Met	cgg Arg	caa Gln	gct Ala	cgg Arg	gtg Val	aag Lys	aga Arg	acc Thr	gat Asp	ctg Leu	gac Asp	aaa Lys	gcg Ala	1927
615					620					625					630	
agg Arg	act Thr	ttt Phe	gtt Val	ggc Gly	acc Thr	tgc Cys	ctg Leu	gat Asp	atg Met	tgt Cys	cct Pro	gag Glu	aag Lys	gag Glu	agg Arg	1975
635					640					645						
tac Tyr	atg Met	cgg Arg	gag Glu	acc Thr	cgt Arg	agc Ser	cag Gln	ctg Leu	agc Ser	gtg Val	ttc Phe	gaa Glu	gtg Val	gtc Val	cca Pro	2023
650					655					660						
ggg Gly	act Thr	gac Asp	cag Gln	gtg Val	gac Asp	cac His	gca Ala	gca Ala	gct Ala	gtg Val	aaa Lys	gag Glu	tac Tyr	agt Ser	cgg Arg	2071
665					670					675						
tcc Ser	tcg Ser	gcg Ala	gat Asp	cag Gln	gag Glu	gag Glu	ccc Pro	ctg Leu	ccc Pro	cac His	gag Glu	ctg Leu	cgg Arg	ccc Pro	ttg Leu	2119
680					685					690						
cca Pro	gtg Val	ctc Leu	agc Ser	agg Arg	acc Thr	atg Met	gac Asp	tac Tyr	ctg Leu	gtg Val	acc Thr	cag Gln	atc Ile	atg Met	gac Asp	2167
695					700					705					710	
cag Gln	aag Lys	gag Glu	ggc Gly	agc Ser	ctg Leu	cgg Arg	gat Asp	tgg Trp	tat Tyr	gac Asp	ttc Phe	gtg Val	tgg Trp	aac Asn	cgc Arg	2215
715					720					725						
acg Thr	cgt Arg	ggc Gly	ata Ile	cgg Arg	aag Lys	gat Asp	atc Ile	acg Thr	cag Gln	cag Gln	cac His	ctc Leu	tgt Cys	gac Asp	ccc Pro	2263
730					735					740						

ctg acg gtg tcc ctg att gag aag tgc acc cgg ttt cac atc cac tgt	2311
Leu Thr Val Ser Leu Ile Glu Lys Cys Thr Arg Phe His Ile His Cys	
745 750 755	
gcc cac ttc atg tgt gag gag ccc atg tcc tcc ttt gat gcc aag atc	2359
Ala His Phe Met Cys Glu Glu Pro Met Ser Ser Phe Asp Ala Lys Ile	
760 765 770	
aat aat gag aac atg acc aag tgc ctg cag agc ctg aag gag atg tac	2407
Asn Asn Glu Asn Met Thr Lys Cys Leu Gln Ser Leu Lys Glu Met Tyr	
775 780 785 790	
cag gac ctg aga aac aag ggt gtc ttc tgt gcc agc gaa gcg gag ttc	2455
Gln Asp Leu Arg Asn Lys Gly Val Phe Cys Ala Ser Glu Ala Glu Phe	
795 800 805	
cag ggc tac aat gtt ctg ctc agt ctc aac aag gga gac atc cta aga	2503
Gln Gly Tyr Asn Val Leu Leu Ser Leu Asn Lys Gly Asp Ile Leu Arg	
810 815 820	
gaa gta caa cag ttc cat cct gct gtt aga aac tca tct gag gtg aaa	2551
Glu Val Gln Gln Phe His Pro Ala Val Arg Asn Ser Ser Glu Val Lys	
825 830 835	
ttt gct gtt cag gct ttt gct gca ttg aac agt aat aat ttt gtg aga	2599
Phe Ala Val Gln Ala Phe Ala Ala Leu Asn Ser Asn Asn Phe Val Arg	
840 845 850	
ttt ttc aaa ctg gtc cag tca gct tct tac ctg aac gct tgt ctt tta	2647
Phe Phe Lys Leu Val Gln Ser Ala Ser Tyr Leu Asn Ala Cys Leu Leu	
855 860 865 870	
cac tgt tac ttc agt cag atc cgc aag gat gct ctc cgg gcg ctc aac	2695
His Cys Tyr Phe Ser Gln Ile Arg Lys Asp Ala Leu Arg Ala Leu Asn	
875 880 885	
ttt gcg tac acg gtg agc aca cag cga tct acc atc ttt ccc ctg gat	2743
Phe Ala Tyr Thr Val Ser Thr Gln Arg Ser Thr Ile Phe Pro Leu Asp	
890 895 900	
ggt gtg gtg cgc atg ctg ctg ttc aga gac tgt gaa gag gcc acc gac	2791
Gly Val Val Arg Met Leu Leu Phe Arg Asp Cys Glu Glu Ala Thr Asp	
905 910 915	
ttc ctc acc tgc cac ggc ctc acc gtt tcc gac ggc tgt gtg gag ctg	2839
Phe Leu Thr Cys His Gly Leu Thr Val Ser Asp Gly Cys Val Glu Leu	
920 925 930	
aac cgg tct gca ttc ctg gaa cca gag gga tta tcc aag acc agg aag	2887
Asn Arg Ser Ala Phe Leu Glu Pro Glu Gly Leu Ser Lys Thr Arg Lys	
935 940 945 950	
tcg gtg ttt att act agg aag ctg acg gtg tca gtc ggg gaa att gtg	2935
Ser Val Phe Ile Thr Arg Lys Leu Thr Val Ser Val Gly Glu Ile Val	
955 960 965	
aac gga ggg cca ttg ccc ccc gtc cct cgt cac acc cct gtg tgc agc	2983
Asn Gly Gly Pro Leu Pro Pro Val Pro Arg His Thr Pro Val Cys Ser	

970						975						980						
ttc	aac	tcc	cag	aac	aag	tac	atc	ggg	gag	agc	ctg	gcc	gcg	gag	ctg	3031		
Phe	Asn	Ser	Gln	Asn	Lys	Tyr	Ile	Gly	Glu	Ser	Leu	Ala	Ala	Glu	Leu			
985						990						995						
ccc	gtc	agc	acc	cag	aga	ccc	ggc	tcc	gac	aca	gtg	ggc	gga	ggg		3076		
Pro	Val	Ser	Thr	Gln	Arg	Pro	Gly	Ser	Asp	Thr	Val	Gly	Gly	Gly				
1000						1005						1010						
aga	gga	gag	gag	tgt	ggt	gta	gag	ccg	gat	gca	ccc	ctg	tcc	agt		3121		
Arg	Gly	Glu	Glu	Cys	Gly	Val	Glu	Pro	Asp	Ala	Pro	Leu	Ser	Ser				
1015						1020						1025						
ctc	cca	cag	tct	cta	cca	gcc	cct	gcg	ccc	tca	cca	gtg	cct	ctg		3166		
Leu	Pro	Gln	Ser	Leu	Pro	Ala	Pro	Ala	Pro	Ser	Pro	Val	Pro	Leu				
1030						1035						1040						
cct	cct	gtc	ctg	gca	ctg	acc	ccg	tct	gtg	gcg	ccc	agc	ctc	ttc		3211		
Pro	Pro	Val	Leu	Ala	Leu	Thr	Pro	Ser	Val	Ala	Pro	Ser	Leu	Phe				
1045						1050						1055						
cag	ctg	tct	gtg	cag	cct	gaa	cca	ccg	cct	cca	gag	ccc	gtg	ccc		3256		
Gln	Leu	Ser	Val	Gln	Pro	Glu	Pro	Pro	Pro	Pro	Glu	Pro	Val	Pro				
1060						1065						1070						
atg	tac	tct	gac	gag	gac	ctg	gcg	cag	gtg	gtg	gac	gag	ctc	atc		3301		
Met	Tyr	Ser	Asp	Glu	Asp	Leu	Ala	Gln	Val	Val	Asp	Glu	Leu	Ile				
1075						1080						1085						
cag	gag	gcc	ctg	cag	agg	gac	tgt	gag	gaa	gtt	ggc	tct	gcg	ggt		3346		
Gln	Glu	Ala	Leu	Gln	Arg	Asp	Cys	Glu	Glu	Val	Gly	Ser	Ala	Gly				
1090						1095						1100						
gct	gcc	tac	gca	gct	gcc	gcc	ctg	ggt	gtt	tct	aat	gct	gct	atg		3391		
Ala	Ala	Tyr	Ala	Ala	Ala	Ala	Leu	Gly	Val	Ser	Asn	Ala	Ala	Met				
1105						1110						1115						
gag	gat	ttg	tta	aca	gct	gca	acc	acg	ggc	att	ttg	agg	cac	att		3436		
Glu	Asp	Leu	Leu	Thr	Ala	Ala	Thr	Thr	Gly	Ile	Leu	Arg	His	Ile				
1120						1125						1130						
gca	gct	gaa	gaa	gtg	tct	aag	gaa	aga	gag	cga	agg	gag	cag	gag		3481		
Ala	Ala	Glu	Glu	Val	Ser	Lys	Glu	Arg	Glu	Arg	Arg	Glu	Gln	Glu				
1135						1140						1145						
agg	cag	cgg	gct	gaa	gag	gaa	agg	ttg	aaa	caa	gag	aga	gag	ctg		3526		
Arg	Gln	Arg	Ala	Glu	Glu	Glu	Arg	Leu	Lys	Gln	Glu	Arg	Glu	Leu				
1150						1155						1160						
gtg	tta	agt	gag	ctg	agc	cag	ggc	ctg	gcc	gtg	gag	ctg	atg	gaa		3571		
Val	Leu	Ser	Glu	Leu	Ser	Gln	Gly	Leu	Ala	Val	Glu	Leu	Met	Glu				
1165						1170						1175						
cgc	gtg	atg	atg	gag	ttt	gtg	agg	gaa	acc	tgc	tcc	cag	gag	ttg		3616		
Arg	Val	Met	Met	Glu	Phe	Val	Arg	Glu	Thr	Cys	Ser	Gln	Glu	Leu				
1180						1185						1190						

aag aat gca gta gag aca gac cag agg gtc cgt gtg gcc cgt tgc	3661
Lys Asn Ala Val Glu Thr Asp Gln Arg Val Arg Val Ala Arg Cys	
1195 1200 1205	
tgt gag gat gtc tgt gcc cac tta gtg gac ttg ttt ctc gtg gag	3706
Cys Glu Asp Val Cys Ala His Leu Val Asp Leu Phe Leu Val Glu	
1210 1215 1220	
gaa atc ttc cag act gca aag gag acc ctc cag gag ctt cag tgc	3751
Glu Ile Phe Gln Thr Ala Lys Glu Thr Leu Gln Glu Leu Gln Cys	
1225 1230 1235	
ttc tgc aag tat cta cag cgg tgg agg gaa gct gtc aca gcc cgc	3796
Phe Cys Lys Tyr Leu Gln Arg Trp Arg Glu Ala Val Thr Ala Arg	
1240 1245 1250	
aag aaa ctg agg cgc caa atg cgg gct ttc cct gct gcg ccc tgc	3841
Lys Lys Leu Arg Arg Gln Met Arg Ala Phe Pro Ala Ala Pro Cys	
1255 1260 1265	
tgc gtg gac gtg agc gac cgg ctg agg gcg ctg gcg ccc agc gca	3886
Cys Val Asp Val Ser Asp Arg Leu Arg Ala Leu Ala Pro Ser Ala	
1270 1275 1280	
gag tgc ccc att gct gaa gag aac ctg gcc agg ggc ctc ctg gac	3931
Glu Cys Pro Ile Ala Glu Glu Asn Leu Ala Arg Gly Leu Leu Asp	
1285 1290 1295	
ctg ggc cat gca ggg aga ttg ggc atc tct tgc acc agg tta agg	3976
Leu Gly His Ala Gly Arg Leu Gly Ile Ser Cys Thr Arg Leu Arg	
1300 1305 1310	
cgg ctc aga aac aag aca gct cac cag atg aag gtt cag cac ttc	4021
Arg Leu Arg Asn Lys Thr Ala His Gln Met Lys Val Gln His Phe	
1315 1320 1325	
tac cag cag ctg ctg agt gat gtg gca tgg gcg tct ctg gac ctg	4066
Tyr Gln Gln Leu Leu Ser Asp Val Ala Trp Ala Ser Leu Asp Leu	
1330 1335 1340	
cca tcc ctc gtg gct gag cac ctc cct ggg agg cag gag cat gtg	4111
Pro Ser Leu Val Ala Glu His Leu Pro Gly Arg Gln Glu His Val	
1345 1350 1355	
ttt tgg aag ctg gtg ctg gtg ttg ccg gat gta gag gag cag tcc	4156
Phe Trp Lys Leu Val Leu Val Leu Pro Asp Val Glu Glu Gln Ser	
1360 1365 1370	
cca gag agt tgt ggc aga att cta gca aat tgg tta aaa gtc aag	4201
Pro Glu Ser Cys Gly Arg Ile Leu Ala Asn Trp Leu Lys Val Lys	
1375 1380 1385	
ttc atg gga gat gaa ggc tca gtg gat gac aca tcc agc gat gct	4246
Phe Met Gly Asp Glu Gly Ser Val Asp Asp Thr Ser Ser Asp Ala	
1390 1395 1400	
ggt ggg att cag acg ctt tcg ctt ttc aac tca ctt agc agc aaa	4291
Gly Gly Ile Gln Thr Leu Ser Leu Phe Asn Ser Leu Ser Ser Lys	

1405	1410	1415	
ggg gat cag atg att tct gtt aac gtg tgt ata aag gtg gcc cat 4336			
Gly Asp Gln Met Ile Ser Val Asn Val Cys Ile Lys Val Ala His			
1420	1425	1430	
ggc gcc ctc agt gat ggt gcc att gat gct gtg gag aca cag aag 4381			
Gly Ala Leu Ser Asp Gly Ala Ile Asp Ala Val Glu Thr Gln Lys			
1435	1440	1445	
gac ctc ctg gga gcc agt ggg ctc atg ctg ctg ctt ccc ccc aaa 4426			
Asp Leu Leu Gly Ala Ser Gly Leu Met Leu Leu Leu Pro Pro Lys			
1450	1455	1460	
atg aag agt gag gac atg gca gag gag gac gtg tac tgg ctg tcg 4471			
Met Lys Ser Glu Asp Met Ala Glu Glu Asp Val Tyr Trp Leu Ser			
1465	1470	1475	
gcc ttg ctg cag ctc aag cag ctc ctg cag gct aag ccc ttc cag 4516			
Ala Leu Leu Gln Leu Lys Gln Leu Leu Gln Ala Lys Pro Phe Gln			
1480	1485	1490	
cct gcg ctt cct ctg gtg gtt ctt gtg cct agc cca gga ggg gac 4561			
Pro Ala Leu Pro Leu Val Val Leu Val Pro Ser Pro Gly Gly Asp			
1495	1500	1505	
gcc gtt gag aag gaa gta gaa gat ggt ctg atg cta cag gac ttg 4606			
Ala Val Glu Lys Glu Val Glu Asp Gly Leu Met Leu Gln Asp Leu			
1510	1515	1520	
gtt tca gct aag ctg att tca gat tac act gtt acc gag atc cct 4651			
Val Ser Ala Lys Leu Ile Ser Asp Tyr Thr Val Thr Glu Ile Pro			
1525	1530	1535	
gat acc att aat gat cta caa ggt tca act aag gtt ttg caa gca 4696			
Asp Thr Ile Asn Asp Leu Gln Gly Ser Thr Lys Val Leu Gln Ala			
1540	1545	1550	
gtg cag tgg ctg gtt tcc cac tgc ccc cat tcc ctt gac ctc tgc 4741			
Val Gln Trp Leu Val Ser His Cys Pro His Ser Leu Asp Leu Cys			
1555	1560	1565	
tgc cag act ctc att cag tac gtc gaa gac ggg att ggc cat gag 4786			
Cys Gln Thr Leu Ile Gln Tyr Val Glu Asp Gly Ile Gly His Glu			
1570	1575	1580	
ttt agt ggc cgc ttt ttc cat gac aga aga gag agg cgt ctg ggc 4831			
Phe Ser Gly Arg Phe Phe His Asp Arg Arg Glu Arg Arg Leu Gly			
1585	1590	1595	
ggt ctt gct tct cag gag cct ggc gcc atc att gag ctg ttt aac 4876			
Gly Leu Ala Ser Gln Glu Pro Gly Ala Ile Ile Glu Leu Phe Asn			
1600	1605	1610	
agt gtg ctg cag ttc ctg gct tct gtg gtg tcc tct gaa cag ctg 4921			
Ser Val Leu Gln Phe Leu Ala Ser Val Val Ser Ser Glu Gln Leu			
1615	1620	1625	

tgt gac ctg tcc tgg cct gtc act gag ttt gct gag gca ggg ggc	4966
Cys Asp Leu Ser Trp Pro Val Thr Glu Phe Ala Glu Ala Gly Gly	
1630 1635 1640	
agc cgg ctg ctt cct cac ctg cac tgg aat gcc cca gag cac ctg	5011
Ser Arg Leu Leu Pro His Leu His Trp Asn Ala Pro Glu His Leu	
1645 1650 1655	
gcc tgg ctg aag cag gct gtg ctc ggg ttc cag ctt ccg cag atg	5056
Ala Trp Leu Lys Gln Ala Val Leu Gly Phe Gln Leu Pro Gln Met	
1660 1665 1670	
gac ctt cca ccc ctg ggg gcc ccc tgg ctc ccc gtg tgc tcc atg	5101
Asp Leu Pro Pro Leu Gly Ala Pro Trp Leu Pro Val Cys Ser Met	
1675 1680 1685	
gtt gtc cag tac gcc tcc cag atc ccc agc tca cgc cag aca cag	5146
Val Val Gln Tyr Ala Ser Gln Ile Pro Ser Ser Arg Gln Thr Gln	
1690 1695 1700	
cct gtc ctc cag tcc cag gtg gag aac ctg ctc cac aga acc tac	5191
Pro Val Leu Gln Ser Gln Val Glu Asn Leu Leu His Arg Thr Tyr	
1705 1710 1715	
tgt agg tgg aag agc aag agt ccc tcc cca gtc cat ggg gca ggc	5236
Cys Arg Trp Lys Ser Lys Ser Pro Ser Pro Val His Gly Ala Gly	
1720 1725 1730	
ccc tcg gtc atg gag atc cca tgg gat gat ctt atc gcc ttg tgt	5281
Pro Ser Val Met Glu Ile Pro Trp Asp Asp Leu Ile Ala Leu Cys	
1735 1740 1745	
atc aac cac aag ctg aga gac tgg acg ccc ccc cgg ctt cct gtt	5326
Ile Asn His Lys Leu Arg Asp Trp Thr Pro Pro Arg Leu Pro Val	
1750 1755 1760	
aca tca gag gcg ctg agt gaa gat ggt cag ata tgt gtg tat ttt	5371
Thr Ser Glu Ala Leu Ser Glu Asp Gly Gln Ile Cys Val Tyr Phe	
1765 1770 1775	
ttt aaa aac gat ttg aaa aaa tat gat gtt cct ttg tcg tgg gaa	5416
Phe Lys Asn Asp Leu Lys Lys Tyr Asp Val Pro Leu Ser Trp Glu	
1780 1785 1790	
caa gcc agg ttg cag acg cag aag gag cta cag ctg aga gag gga	5461
Gln Ala Arg Leu Gln Thr Gln Lys Glu Leu Gln Leu Arg Glu Gly	
1795 1800 1805	
cgt ttg gca ata aag cct ttt cat cct tct gca aac aat ttt ccc	5506
Arg Leu Ala Ile Lys Pro Phe His Pro Ser Ala Asn Asn Phe Pro	
1810 1815 1820	
ata cca ttg ctt cac atg cac cgt aac tgg aag agg agc aca gag	5551
Ile Pro Leu Leu His Met His Arg Asn Trp Lys Arg Ser Thr Glu	
1825 1830 1835	
tgt gct caa gag ggg agg att ccc agc aca gag gat ctg atg cga	5596
Cys Ala Gln Glu Gly Arg Ile Pro Ser Thr Glu Asp Leu Met Arg	

1840	1845	1850	
gga gct tct gct gag gag ctc Gly Ala Ser Ala Glu Glu Leu 1855	ttg gcg cag tgt ttg Leu Ala Gln Cys Leu 1860	tcg agc agt Ser Ser Ser 1865	5641
ctg ctg ctg gag aaa gaa gag Leu Leu Leu Glu Lys Glu Glu 1870	aac aag agg ttt gaa Asn Lys Arg Phe Glu 1875	gat cag ctt Asp Gln Leu 1880	5686
cag caa tgg ttg tct gaa gac Gln Gln Trp Leu Ser Glu Asp 1885	tca gga gca ttt acg Ser Gly Ala Phe Thr 1890	gat tta act Asp Leu Thr 1895	5731
tcc ctt ccc ctc tat ctt cct Ser Leu Pro Leu Tyr Leu Pro 1900	cag act cta gtg tct Gln Thr Leu Val Ser 1905	ctt tct cac Leu Ser His 1910	5776
act att gaa cct gtg atg aaa Thr Ile Glu Pro Val Met Lys 1915	aca tct gta act act Thr Ser Val Thr Thr 1920	agc cca cag Ser Pro Gln 1925	5821
agt gac atg atg agg gag caa Ser Asp Met Met Arg Glu Gln 1930	ctg cag ctg tca gag Leu Gln Leu Ser Glu 1935	gcg aca gga Ala Thr Gly 1940	5866
acg tgt cta ggc gaa cga cta Thr Cys Leu Gly Glu Arg Leu 1945	aag cac ctg gaa agg Lys His Leu Glu Arg 1950	ctg atc cgg Leu Ile Arg 1955	5911
agt tca agg gaa gag gaa gtt Ser Ser Arg Glu Glu Glu Val 1960	gcc tct gag ctc cat Ala Ser Glu Leu His 1965	ctc tct gcg Leu Ser Ala 1970	5956
ctg cta gac atg gtg gac att Leu Leu Asp Met Val Asp Ile 1975	tgagcagcct gacctgtggg 1980	gagggggtct	6007
ctcccgaaga gtttctgttt ttactcaaaa taatgttatt ctcagatgct tgatgcactg			6067
ttggaaatgt gattaattta atcatgcaga taaaccattt aaatgtc			6114

<210> 4
 <211> 1980
 <212> PRT
 <213> Homo sapiens

<400> 4

Met	Asn	Pro	Thr	Asn	Pro	Phe	Ser	Gly	Gln	Gln	Pro	Ser	Ala	Phe	Ser
1				5					10					15	

Ala	Ser	Ser	Ser	Asn	Val	Gly	Thr	Leu	Pro	Ser	Lys	Pro	Pro	Phe	Arg
			20					25					30		

Phe Gly Gln Pro Ser Leu Phe Gly Gln Asn Ser Thr Leu Ser Gly Lys
35 40 45

Ser Ser Gly Phe Ser Gln Val Ser Ser Phe Pro Ala Ser Ser Gly Val
50 55 60

Ser His Ser Ser Ser Val Gln Thr Leu Gly Phe Thr Gln Thr Ser Ser
65 70 75 80

Val Gly Pro Phe Ser Gly Leu Glu His Thr Ser Thr Phe Val Ala Thr
85 90 95

Ser Gly Pro Ser Ser Ser Ser Val Leu Gly Asn Thr Gly Phe Ser Phe
100 105 110

Lys Ser Pro Thr Ser Val Gly Ala Phe Pro Ser Thr Ser Ala Phe Gly
115 120 125

Gln Glu Ala Gly Glu Ile Val Asn Ser Gly Phe Gly Lys Thr Glu Phe
130 135 140

Ser Phe Lys Pro Leu Glu Asn Ala Val Phe Lys Pro Ile Leu Gly Ala
145 150 155 160

Glu Ser Glu Pro Glu Lys Thr Gln Ser Gln Ile Ala Ser Gly Phe Phe
165 170 175

Thr Phe Ser His Pro Ile Ser Ser Ala Pro Gly Gly Leu Ala Pro Phe
180 185 190

Ser Phe Pro Gln Val Thr Ser Ser Ser Ala Thr Thr Ser Asn Phe Thr
195 200 205

Phe Ser Lys Pro Val Ser Ser Asn Asn Ser Leu Ser Ala Phe Thr Pro
210 215 220

Ala Leu Ser Asn Gln Asn Val Glu Glu Glu Lys Arg Gly Pro Lys Ser
225 230 235 240

Ile Phe Gly Ser Ser Asn Asn Ser Phe Ser Ser Phe Pro Val Ser Ser
245 250 255

Ala Val Leu Gly Glu Pro Phe Gln Ala Ser Lys Ala Gly Val Arg Gln
260 265 270

Gly Cys Glu Glu Ala Val Ser Gln Val Glu Pro Leu Pro Ser Leu Met
275 280 285

Lys Gly Leu Lys Arg Lys Glu Asp Gln Asp Arg Ser Pro Arg Arg His
290 295 300

Gly His Glu Pro Ala Glu Asp Ser Asp Pro Leu Ser Arg Gly Asp His
305 310 315 320

Pro Pro Asp Lys Arg Pro Val Arg Leu Asn Arg Pro Arg Gly Gly Thr
325 330 335

Leu Phe Gly Arg Thr Ile Gln Asp Val Phe Lys Ser Asn Lys Glu Val
340 345 350

Gly Arg Leu Gly Asn Lys Glu Ala Lys Lys Glu Thr Gly Phe Val Glu
355 360 365

Ser Ala Glu Ser Asp His Met Ala Ile Pro Gly Gly Asn Gln Ser Val
370 375 380

Leu Ala Pro Ser Arg Ile Pro Gly Val Asn Lys Glu Glu Glu Thr Glu
385 390 395 400

Ser Arg Glu Lys Lys Glu Asp Ser Leu Arg Gly Thr Pro Ala Arg Gln
405 410 415

Ser Asn Arg Ser Glu Ser Thr Asp Ser Leu Gly Gly Leu Ser Pro Ser
420 425 430

Glu Val Thr Ala Ile Gln Cys Lys Asn Ile Pro Asp Tyr Leu Asn Asp
435 440 445

Arg Thr Ile Leu Glu Asn His Phe Gly Lys Ile Ala Lys Val Gln Arg
450 455 460

Ile Phe Thr Arg Arg Ser Lys Lys Leu Ala Val Val His Phe Phe Asp
465 470 475 480

His Ala Ser Ala Ala Leu Ala Arg Lys Lys Gly Lys Ser Leu His Lys
485 490 495

Asp Met Ala Ile Phe Trp His Arg Lys Lys Ile Ser Pro Asn Lys Lys
500 505 510

Pro Phe Ser Leu Lys Glu Lys Lys Pro Gly Asp Gly Glu Val Ser Pro
515 520 525

Ser Thr Glu Asp Ala Pro Phe Gln His Ser Pro Leu Gly Lys Ala Ala
530 535 540

Gly Arg Thr Gly Ala Ser Ser Leu Leu Asn Lys Ser Ser Pro Val Lys
545 550 555 560

Lys Pro Ser Leu Leu Lys Ala His Gln Phe Glu Gly Asp Ser Phe Asp
565 570 575

Ser Ala Ser Glu Gly Ser Glu Gly Leu Gly Pro Cys Val Leu Ser Leu
580 585 590

Ser Thr Leu Ile Gly Thr Val Ala Glu Thr Ser Lys Glu Lys Tyr Arg
595 600 605

Leu Leu Asp Gln Arg Asp Arg Ile Met Arg Gln Ala Arg Val Lys Arg
610 615 620

Thr Asp Leu Asp Lys Ala Arg Thr Phe Val Gly Thr Cys Leu Asp Met
625 630 635 640

Cys Pro Glu Lys Glu Arg Tyr Met Arg Glu Thr Arg Ser Gln Leu Ser
645 650 655

Val Phe Glu Val Val Pro Gly Thr Asp Gln Val Asp His Ala Ala Ala
660 665 670

Val Lys Glu Tyr Ser Arg Ser Ser Ala Asp Gln Glu Glu Pro Leu Pro
675 680 685

His Glu Leu Arg Pro Leu Pro Val Leu Ser Arg Thr Met Asp Tyr Leu
690 695 700

Val Thr Gln Ile Met Asp Gln Lys Glu Gly Ser Leu Arg Asp Trp Tyr
705 710 715 720

Asp Phe Val Trp Asn Arg Thr Arg Gly Ile Arg Lys Asp Ile Thr Gln
725 730 735

Gln His Leu Cys Asp Pro Leu Thr Val Ser Leu Ile Glu Lys Cys Thr
740 745 750

Arg Phe His Ile His Cys Ala His Phe Met Cys Glu Glu Pro Met Ser
755 760 765

Ser Phe Asp Ala Lys Ile Asn Asn Glu Asn Met Thr Lys Cys Leu Gln
770 775 780

Ser Leu Lys Glu Met Tyr Gln Asp Leu Arg Asn Lys Gly Val Phe Cys
785 790 795 800

Ala Ser Glu Ala Glu Phe Gln Gly Tyr Asn Val Leu Leu Ser Leu Asn
805 810 815

Lys Gly Asp Ile Leu Arg Glu Val Gln Gln Phe His Pro Ala Val Arg
820 825 830

Asn Ser Ser Glu Val Lys Phe Ala Val Gln Ala Phe Ala Ala Leu Asn
835 840 845

Ser Asn Asn Phe Val Arg Phe Phe Lys Leu Val Gln Ser Ala Ser Tyr
850 855 860

Leu Asn Ala Cys Leu Leu His Cys Tyr Phe Ser Gln Ile Arg Lys Asp
865 870 875 880

Ala Leu Arg Ala Leu Asn Phe Ala Tyr Thr Val Ser Thr Gln Arg Ser
885 890 895

Thr Ile Phe Pro Leu Asp Gly Val Val Arg Met Leu Leu Phe Arg Asp
900 905 910

Cys Glu Glu Ala Thr Asp Phe Leu Thr Cys His Gly Leu Thr Val Ser
915 920 925

Asp Gly Cys Val Glu Leu Asn Arg Ser Ala Phe Leu Glu Pro Glu Gly
930 935 940

Leu Ser Lys Thr Arg Lys Ser Val Phe Ile Thr Arg Lys Leu Thr Val
945 950 955 960

Ser Val Gly Glu Ile Val Asn Gly Gly Pro Leu Pro Pro Val Pro Arg
965 970 975

His Thr Pro Val Cys Ser Phe Asn Ser Gln Asn Lys Tyr Ile Gly Glu
980 985 990

Ser Leu Ala Ala Glu Leu Pro Val Ser Thr Gln Arg Pro Gly Ser Asp
995 1000 1005

Thr Val Gly Gly Gly Arg Gly Glu Glu Cys Gly Val Glu Pro Asp
1010 1015 1020

Ala Pro Leu Ser Ser Leu Pro Gln Ser Leu Pro Ala Pro Ala Pro
1025 1030 1035

Ser Pro Val Pro Leu Pro Pro Val Leu Ala Leu Thr Pro Ser Val
1040 1045 1050

Ala Pro Ser Leu Phe Gln Leu Ser Val Gln Pro Glu Pro Pro Pro
1055 1060 1065

Pro Glu Pro Val Pro Met Tyr Ser Asp Glu Asp Leu Ala Gln Val
1070 1075 1080

Val Asp Glu Leu Ile Gln Glu Ala Leu Gln Arg Asp Cys Glu Glu
1085 1090 1095

Val Gly Ser Ala Gly Ala Ala Tyr Ala Ala Ala Ala Leu Gly Val
1100 1105 1110

Ser Asn Ala Ala Met Glu Asp Leu Leu Thr Ala Ala Thr Thr Gly
1115 1120 1125

Ile Leu Arg His Ile Ala Ala Glu Glu Val Ser Lys Glu Arg Glu
1130 1135 1140

Arg Arg Glu Gln Glu Arg Gln Arg Ala Glu Glu Glu Arg Leu Lys
1145 1150 1155

Gln Glu Arg Glu Leu Val Leu Ser Glu Leu Ser Gln Gly Leu Ala
1160 1165 1170

Val Glu Leu Met Glu Arg Val Met Met Glu Phe Val Arg Glu Thr
1175 1180 1185

Cys	Ser	Gln	Glu	Leu	Lys	Asn	Ala	Val	Glu	Thr	Asp	Gln	Arg	Val
1190						1195					1200			
Arg	Val	Ala	Arg	Cys	Cys	Glu	Asp	Val	Cys	Ala	His	Leu	Val	Asp
1205						1210					1215			
Leu	Phe	Leu	Val	Glu	Glu	Ile	Phe	Gln	Thr	Ala	Lys	Glu	Thr	Leu
1220						1225					1230			
Gln	Glu	Leu	Gln	Cys	Phe	Cys	Lys	Tyr	Leu	Gln	Arg	Trp	Arg	Glu
1235						1240					1245			
Ala	Val	Thr	Ala	Arg	Lys	Lys	Leu	Arg	Arg	Gln	Met	Arg	Ala	Phe
1250						1255					1260			
Pro	Ala	Ala	Pro	Cys	Cys	Val	Asp	Val	Ser	Asp	Arg	Leu	Arg	Ala
1265						1270					1275			
Leu	Ala	Pro	Ser	Ala	Glu	Cys	Pro	Ile	Ala	Glu	Glu	Asn	Leu	Ala
1280						1285					1290			
Arg	Gly	Leu	Leu	Asp	Leu	Gly	His	Ala	Gly	Arg	Leu	Gly	Ile	Ser
1295						1300					1305			
Cys	Thr	Arg	Leu	Arg	Arg	Leu	Arg	Asn	Lys	Thr	Ala	His	Gln	Met
1310						1315					1320			
Lys	Val	Gln	His	Phe	Tyr	Gln	Gln	Leu	Leu	Ser	Asp	Val	Ala	Trp
1325						1330					1335			
Ala	Ser	Leu	Asp	Leu	Pro	Ser	Leu	Val	Ala	Glu	His	Leu	Pro	Gly
1340						1345					1350			
Arg	Gln	Glu	His	Val	Phe	Trp	Lys	Leu	Val	Leu	Val	Leu	Pro	Asp
1355						1360					1365			
Val	Glu	Glu	Gln	Ser	Pro	Glu	Ser	Cys	Gly	Arg	Ile	Leu	Ala	Asn
1370						1375					1380			
Trp	Leu	Lys	Val	Lys	Phe	Met	Gly	Asp	Glu	Gly	Ser	Val	Asp	Asp
1385						1390					1395			

Thr	Ser	Ser	Asp	Ala	Gly	Gly	Ile	Gln	Thr	Leu	Ser	Leu	Phe	Asn
	1400					1405					1410			
Ser	Leu	Ser	Ser	Lys	Gly	Asp	Gln	Met	Ile	Ser	Val	Asn	Val	Cys
	1415					1420					1425			
Ile	Lys	Val	Ala	His	Gly	Ala	Leu	Ser	Asp	Gly	Ala	Ile	Asp	Ala
	1430					1435					1440			
Val	Glu	Thr	Gln	Lys	Asp	Leu	Leu	Gly	Ala	Ser	Gly	Leu	Met	Leu
	1445					1450					1455			
Leu	Leu	Pro	Pro	Lys	Met	Lys	Ser	Glu	Asp	Met	Ala	Glu	Glu	Asp
	1460					1465					1470			
Val	Tyr	Trp	Leu	Ser	Ala	Leu	Leu	Gln	Leu	Lys	Gln	Leu	Leu	Gln
	1475					1480					1485			
Ala	Lys	Pro	Phe	Gln	Pro	Ala	Leu	Pro	Leu	Val	Val	Leu	Val	Pro
	1490					1495					1500			
Ser	Pro	Gly	Gly	Asp	Ala	Val	Glu	Lys	Glu	Val	Glu	Asp	Gly	Leu
	1505					1510					1515			
Met	Leu	Gln	Asp	Leu	Val	Ser	Ala	Lys	Leu	Ile	Ser	Asp	Tyr	Thr
	1520					1525					1530			
Val	Thr	Glu	Ile	Pro	Asp	Thr	Ile	Asn	Asp	Leu	Gln	Gly	Ser	Thr
	1535					1540					1545			
Lys	Val	Leu	Gln	Ala	Val	Gln	Trp	Leu	Val	Ser	His	Cys	Pro	His
	1550					1555					1560			
Ser	Leu	Asp	Leu	Cys	Cys	Gln	Thr	Leu	Ile	Gln	Tyr	Val	Glu	Asp
	1565					1570					1575			
Gly	Ile	Gly	His	Glu	Phe	Ser	Gly	Arg	Phe	Phe	His	Asp	Arg	Arg
	1580					1585					1590			
Glu	Arg	Arg	Leu	Gly	Gly	Leu	Ala	Ser	Gln	Glu	Pro	Gly	Ala	Ile
	1595					1600					1605			
Ile	Glu	Leu	Phe	Asn	Ser	Val	Leu	Gln	Phe	Leu	Ala	Ser	Val	Val
	1610					1615					1620			

Ser	Ser	Glu	Gln	Leu	Cys	Asp	Leu	Ser	Trp	Pro	Val	Thr	Glu	Phe
1625						1630					1635			
Ala	Glu	Ala	Gly	Gly	Ser	Arg	Leu	Leu	Pro	His	Leu	His	Trp	Asn
1640						1645					1650			
Ala	Pro	Glu	His	Leu	Ala	Trp	Leu	Lys	Gln	Ala	Val	Leu	Gly	Phe
1655						1660					1665			
Gln	Leu	Pro	Gln	Met	Asp	Leu	Pro	Pro	Leu	Gly	Ala	Pro	Trp	Leu
1670						1675					1680			
Pro	Val	Cys	Ser	Met	Val	Val	Gln	Tyr	Ala	Ser	Gln	Ile	Pro	Ser
1685						1690					1695			
Ser	Arg	Gln	Thr	Gln	Pro	Val	Leu	Gln	Ser	Gln	Val	Glu	Asn	Leu
1700						1705					1710			
Leu	His	Arg	Thr	Tyr	Cys	Arg	Trp	Lys	Ser	Lys	Ser	Pro	Ser	Pro
1715						1720					1725			
Val	His	Gly	Ala	Gly	Pro	Ser	Val	Met	Glu	Ile	Pro	Trp	Asp	Asp
1730						1735					1740			
Leu	Ile	Ala	Leu	Cys	Ile	Asn	His	Lys	Leu	Arg	Asp	Trp	Thr	Pro
1745						1750					1755			
Pro	Arg	Leu	Pro	Val	Thr	Ser	Glu	Ala	Leu	Ser	Glu	Asp	Gly	Gln
1760						1765					1770			
Ile	Cys	Val	Tyr	Phe	Phe	Lys	Asn	Asp	Leu	Lys	Lys	Tyr	Asp	Val
1775						1780					1785			
Pro	Leu	Ser	Trp	Glu	Gln	Ala	Arg	Leu	Gln	Thr	Gln	Lys	Glu	Leu
1790						1795					1800			
Gln	Leu	Arg	Glu	Gly	Arg	Leu	Ala	Ile	Lys	Pro	Phe	His	Pro	Ser
1805						1810					1815			
Ala	Asn	Asn	Phe	Pro	Ile	Pro	Leu	Leu	His	Met	His	Arg	Asn	Trp
1820						1825					1830			

Lys Arg Ser Thr Glu Cys Ala Gln Glu Gly Arg Ile Pro Ser Thr
1835 1840 1845

Glu Asp Leu Met Arg Gly Ala Ser Ala Glu Glu Leu Leu Ala Gln
1850 1855 1860

Cys Leu Ser Ser Ser Leu Leu Leu Glu Lys Glu Glu Asn Lys Arg
1865 1870 1875

Phe Glu Asp Gln Leu Gln Gln Trp Leu Ser Glu Asp Ser Gly Ala
1880 1885 1890

Phe Thr Asp Leu Thr Ser Leu Pro Leu Tyr Leu Pro Gln Thr Leu
1895 1900 1905

Val Ser Leu Ser His Thr Ile Glu Pro Val Met Lys Thr Ser Val
1910 1915 1920

Thr Thr Ser Pro Gln Ser Asp Met Met Arg Glu Gln Leu Gln Leu
1925 1930 1935

Ser Glu Ala Thr Gly Thr Cys Leu Gly Glu Arg Leu Lys His Leu
1940 1945 1950

Glu Arg Leu Ile Arg Ser Ser Arg Glu Glu Glu Val Ala Ser Glu
1955 1960 1965

Leu His Leu Ser Ala Leu Leu Asp Met Val Asp Ile
1970 1975 1980

<210> 5
<211> 863
<212> PRT
<213> retroviral provirus

<400> 5

Lys Glu Gln Lys Thr Val Ala Met Arg Val Lys Glu Lys Tyr Gln His
1 5 10 15

Leu Trp Arg Trp Gly Trp Arg Trp Gly Thr Met Leu Leu Gly Met Leu
20 25 30

Met Ile Cys Ser Ala Thr Glu Lys Leu Trp Val Thr Val Tyr Tyr Gly
35 40 45

Val Pro Val Trp Lys Glu Ala Thr Thr Thr Leu Phe Cys Ala Ser Asp
50 55 60

Ala Lys Ala Tyr Asp Thr Glu Val His Asn Val Trp Ala Thr His Ala
65 70 75 80

Cys Val Pro Thr Asp Pro Asn Pro Gln Glu Val Val Leu Val Asn Val
85 90 95

Thr Glu Asn Phe Asn Met Trp Lys Asn Asp Met Val Glu Gln Met His
100 105 110

Glu Asp Ile Ile Ser Leu Trp Asp Gln Ser Leu Lys Pro Cys Val Lys
115 120 125

Leu Thr Pro Leu Cys Val Ser Leu Lys Cys Thr Asp Leu Lys Asn Asp
130 135 140

Thr Asn Thr Asn Ser Ser Ser Gly Arg Met Ile Met Glu Lys Gly Glu
145 150 155 160

Ile Lys Asn Cys Ser Phe Asn Ile Ser Thr Ser Ile Arg Gly Lys Val
165 170 175

Gln Lys Glu Tyr Ala Phe Phe Tyr Lys Leu Asp Ile Ile Pro Ile Asp
180 185 190

Asn Asp Thr Thr Ser Tyr Thr Leu Thr Ser Cys Asn Thr Ser Val Ile
195 200 205

Thr Gln Ala Cys Pro Lys Val Ser Phe Glu Pro Ile Pro Ile His Tyr
210 215 220

Cys Ala Pro Ala Gly Phe Ala Ile Leu Lys Cys Asn Asn Lys Thr Phe
225 230 235 240

Asn Gly Thr Gly Pro Cys Thr Asn Val Ser Thr Val Gln Cys Thr His
245 250 255

Gly Ile Arg Pro Val Val Ser Thr Gln Leu Leu Leu Asn Gly Ser Leu
260 265 270

Ala Glu Glu Glu Val Val Ile Arg Ser Ala Asn Phe Thr Asp Asn Ala

275					280					285					
Lys	Thr	Ile	Ile	Val	Gln	Leu	Asn	Gln	Ser	Val	Glu	Ile	Asn	Cys	Thr
	290					295					300				
Arg	Pro	Asn	Asn	Asn	Thr	Arg	Lys	Ser	Ile	Arg	Ile	Gln	Arg	Gly	Pro
305					310					315					320
Gly	Arg	Ala	Phe	Val	Thr	Ile	Gly	Lys	Ile	Gly	Asn	Met	Arg	Gln	Ala
				325					330					335	
His	Cys	Asn	Ile	Ser	Arg	Ala	Lys	Trp	Asn	Asn	Thr	Leu	Lys	Gln	Ile
			340					345						350	
Asp	Ser	Lys	Leu	Arg	Glu	Gln	Phe	Gly	Asn	Asn	Lys	Thr	Ile	Ile	Phe
		355					360					365			
Lys	Gln	Ser	Ser	Gly	Gly	Asp	Pro	Glu	Ile	Val	Thr	His	Ser	Phe	Asn
	370					375					380				
Cys	Gly	Gly	Glu	Phe	Phe	Tyr	Cys	Asn	Ser	Thr	Gln	Leu	Phe	Asn	Ser
385					390					395					400
Thr	Trp	Phe	Asn	Ser	Thr	Trp	Ser	Thr	Lys	Gly	Ser	Asn	Asn	Thr	Glu
				405					410					415	
Gly	Ser	Asp	Thr	Ile	Thr	Leu	Pro	Cys	Arg	Ile	Lys	Gln	Ile	Ile	Asn
			420					425					430		
Met	Trp	Gln	Glu	Val	Gly	Lys	Ala	Met	Tyr	Ala	Pro	Pro	Ile	Ser	Gly
		435					440					445			
Gln	Ile	Arg	Cys	Ser	Ser	Asn	Ile	Thr	Gly	Leu	Leu	Leu	Thr	Arg	Asp
	450					455					460				
Gly	Gly	Asn	Ser	Asn	Asn	Glu	Ser	Glu	Ile	Phe	Arg	Pro	Gly	Gly	Gly
465					470					475					480
Asp	Met	Arg	Asp	Asn	Trp	Arg	Ser	Glu	Leu	Tyr	Lys	Tyr	Lys	Val	Val
				485					490					495	
Lys	Ile	Glu	Pro	Leu	Gly	Val	Ala	Pro	Thr	Lys	Ala	Lys	Arg	Arg	Val
			500					505					510		

Val Gln Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Leu Phe Leu Gly
515 520 525

Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu
530 535 540

Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Asn
545 550 555 560

Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr
565 570 575

Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg
580 585 590

Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys
595 600 605

Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys
610 615 620

Ser Leu Glu Gln Ile Trp Asn Asn Met Thr Trp Met Glu Trp Asp Arg
625 630 635 640

Glu Ile Asn Asn Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser
645 650 655

Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys
660 665 670

Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr
675 680 685

Ile Lys Leu Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Ile
690 695 700

Val Phe Ala Val Leu Ser Val Val Asn Arg Val Arg Gln Gly Tyr Ser
705 710 715 720

Pro Leu Ser Phe Gln Thr His Leu Pro Ile Pro Arg Gly Pro Asp Arg
725 730 735

Pro Glu Gly Ile Glu Glu Glu Gly Gly Glu Arg Asp Arg Asp Arg Ser

740

745

750

Ile Arg Leu Val Asn Gly Ser Leu Ala Leu Ile Trp Asp Asp Leu Arg
 755 760 765

Ser Leu Cys Leu Phe Ser Tyr His Arg Leu Arg Asp Leu Leu Leu Ile
 770 775 780

Val Thr Arg Ile Val Glu Leu Leu Gly Arg Arg Gly Trp Glu Ala Leu
 785 790 795 800

Lys Tyr Trp Trp Asn Leu Leu Gln Tyr Trp Ser Gln Glu Leu Lys Asn
 805 810 815

Ser Ala Val Ser Leu Leu Asn Ala Thr Ala Ile Ala Val Ala Glu Gly
 820 825 830

Thr Asp Arg Val Ile Glu Val Val Gln Gly Ala Tyr Arg Ala Ile Arg
 835 840 845

His Ile Pro Arg Arg Ile Arg Gln Gly Leu Glu Arg Ile Leu Leu
 850 855 860

<210> 6
 <211> 23
 <212> PRT
 <213> retroviral provirus

<400> 6

Asn Asn Thr Arg Lys Ser Ile Arg Ile Gln Arg Gly Pro Gly Arg Ala
 1 5 10 15

Phe Val Thr Ile Gly Lys Ile
 20

<210> 7
 <211> 20
 <212> DNA
 <213> Artificial sequence

<220>
 <223> primer

<400> 7
 tcccgccttc cagctgtgac

20

<210> 8
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> primer

<400> 8
gtgctgctgt gttatgtcct

20

<210> 9
<211> 24
<212> PRT
<213> retroviral provirus

<400> 9

Cys	Asn	Asn	Thr	Arg	Lys	Ser	Ile	Arg	Ile	Gln	Arg	Gly	Pro	Gly	Arg
1				5					10					15	

Ala Phe Val Thr Ile Gly Lys Ile
20
61/64